ECOLOGY OF GREAT BASIN CANADA GOOSE BROODS IN SOUTHCENTRAL WASHINGTON

by

Lester E. Eberhardt

A THESIS

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

Completed: February 26, 1987

Commencement: June 1987

AN ABSTRACT OF THE THESIS OF

Lester E. Eberhardt for the degree of Doctor of Philosophy in Wildlife Science presented on February 26, 1987

Title: Ecology of Great Basin Canada Goose Broods in Southcentral Washington

Abstract approved: Robert G. Anthony
Robert G. Anthony

The ecology of female Great Basin Canada geese (Branta canadensis moffitti) and their broods was studied during the rearing seasons of 1983 and 1984 on the Columbia River in southcentral Washington. The movements and activities of 41 adult female geese, marked with radio-transmitters, and their broods were monitored. Adult female geese used an average of 8.8 ± 4.4 (1 SD) km of the Columbia River to raise their broods to fledging. Movement rates of broods were not significantly influenced by age of goslings or weather patterns. Broods were relatively inactive at night and most mobile during late-morning hours. During the prefledging period, feeding was the predominate activity of broods and adult females, involving approximately 54% and 45% of the daylight hours, respectively. The activity budgets of both adult females and their broods changed dramatically at fledging. Time spent in inactive states and preening increased, while movement and feeding activity decreased.

Broods preferred terrestrial habitats within 5 m of the shoreline over aquatic habitats. A shoreline pasture that was fertilized and grazed by cattle was an important foraging habitat to local broods, but did not attract broods from surrounding areas. Broods that utilized this pasture spent less time moving and were inactive more than broods that utilized only native habitats. These differences may be related to the increased amount of time required for broods in native habitats to search for adequate foraging sites. However, the total time spent feeding and growth rates of broods in the two types of habitat did not appear to differ, suggesting that the quality and quantity of native forages were sufficient to meet nutritional needs of broods.

Broods appeared to be most susceptible to human disturbance during the first few weeks following hatching, but older broods were relatively tolerant of repeated human disturbance.

Fifteen (55.6%) of the 27 adult females, for which the fate of the brood could be determined, fledged at least one gosling. Daily survival rates of goslings, based on the Mayfield method, were significantly lower during the first 14 days of life (0.971), as compared to the rest of the 70-day rearing season (0.995). The overall estimated survival rate for goslings during the rearing season was 0.491 ± 0.008 (2 SE), which was considerably lower than that previously recorded for this species. The reasons for the apparent low survival are unknown, but may partially reflect the increased ability of radio-telemetry techniques, compared to other more commonly used techniques, to detect gosling mortality. The

significance of the apparent low survival rate is also unknown; however, the resident nesting population was increasing during the study period.